

### BAYER ADVANCED LLC

1500 Urban Center Dr.

Birmingham, AL 35242

### TRANSPORTATION EMERGENCY:

CALL CHEMTREC: (800) 424-9300

DISTRICT OF COLUMBIA: (202) 483-7616

### 1. CHEMICAL PRODUCT IDENTIFICATION:

**PRODUCT NAME:** BAYER ADVANCED GARDEN Plant 2-in-1 Plant  
Spikes Fertilizer + Insecticide 8-11-5 RTU

**PRODUCT CODE:** 41019

**CHEMICAL FAMILY:** Chloronicotinyl

**CHEMICAL NAME:** 1-((6-chloro-3-pyridinyl)methyl)-N-nitro-2-imidazolidini-mine

**SYNONYMS:** Imidacloprid

**FORMULA:** C9 H10 Cl N5 O2

**PRODUCT USE:** Consumer Insecticide

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

#### INGREDIENT NAME

/CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
***** HAZARDOUS INGREDIENTS *****		
Imidacloprid		
138261-41-3	OSHA : Not Established ACGIH: Not Established	2.5 %
Fertilizer 16-8-12	OSHA : Not Established ACGIH: Not Established	30-40 %

### 3. HAZARDS IDENTIFICATION:

#### EMERGENCY OVERVIEW CAUTION!

**Color:** Off-white **Form:** Solid; Rod, pin, spike **Odor:** Not established  
Harmful if absorbed through skin; Causes eye irritation; Harmful if swallowed.

#### POTENTIAL HEALTH EFFECTS:

**ROUTE(S) OF ENTRY:** Inhalation; Skin Contact; Skin Absorption; Eye Contact; Ingestion

#### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

**ACUTE EFFECTS OF EXPOSURE:** Exposure during the labeled use of this product is expected to be minimal. Consumers should refer to the packaging label for proper handling procedures. No specific symptoms of acute overexposure are known to occur in humans. Based on EPA Toxicity Category criteria, this material is mildly toxic by the oral and dermal routes. In addition, animal studies have shown that it is mildly irritating to the conjunctiva of the eye but the irritation resolves within 48 hours. The fertilizer contained in this product may cause eye, skin or mucous membrane irritation. Ingestion may cause nausea.

**CHRONIC EFFECTS OF EXPOSURE:** Based on animal studies, no adverse effects are expected from chronic exposure to this product.

**CARCINOGENICITY:** This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** No specific medical conditions are known which may be aggravated by exposure to this product. Pre-existing respiratory disease may be aggravated by sufficient exposure to the fertilizer component.

### NON-TRANSPORTATION:

BAYER EMERGENCY PHONE: (877) 229-3763

BAYER INFORMATION PHONE: (877) 229-3724

### 4. FIRST AID MEASURES:

**FIRST AID FOR EYES:** Hold eyelids open and flush with plenty of water for 15 minutes. Call a physician if irritation persists or develops after flushing.

**FIRST AID FOR SKIN:** Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation develops or persists.

**FIRST AID FOR INHALATION:** First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.

**FIRST AID FOR INGESTION:** If ingestion is suspected, call a physician or poison control center. If medical assistance cannot be given immediately, drink large quantities of water. DO NOT induce vomiting. Seek medical attention. Avoid alcohol. Do not attempt to give by mouth to an unconscious or convulsing person.

**NOTE TO PHYSICIAN:** Treat symptomatically.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** Not applicable

**EXTINGUISHING MEDIA:** Water; Carbon Dioxide; Dry Chemical; Foam

**SPECIAL FIRE FIGHTING PROCEDURES:** Keep out of smoke, cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain run-off by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

### 6. ACCIDENTAL RELEASE MEASURES:

**SPILL OR LEAK PROCEDURES:** Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing dusts and skin contact. Avoid generating dust (a fine spray mist, plastic film cover, or floor sweeping compound may be used if necessary). Use recommended protective equipment while carefully sweeping up spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

### 7. HANDLING AND STORAGE:

**STORAGE TEMPERATURE(MIN/MAX):** None/30 day average not to exceed 100 °F.

**SHELF LIFE:** Time/temperature-dependent; contact Bayer for specific information.

**SPECIAL SENSITIVITY:** Not established

**HANDLING/STORAGE PRECAUTIONS:** Do not allow product to contaminate any material intended for use or consumption by humans or animals.

**8. PERSONAL PROTECTION:**

**REQUIRED WORK/HYGIENE PROCEDURES:** Exposure during the labeled use of this product is expected to be minimal. Consumers should refer to the packaging label for proper handling procedures. However, if exposure to this product is possible while handling large quantities such as in subsequent manufacturing, transportation spills or other emergencies, the following personal protection is recommended.

**EYE PROTECTION REQUIREMENTS:** Safety glasses

**SKIN PROTECTION REQUIREMENTS:** Long sleeves and trousers

**HAND PROTECTION REQUIREMENTS:** Chemical-resistant gloves such as latex or nitrile

**RESPIRATOR REQUIREMENTS:** Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to this product is excessive, wear a NIOSH-approved particulate respirator.

**ADDITIONAL PROTECTIVE MEASURES:** Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

**PHYSICAL FORM:** Solid

**APPEARANCE:** Rod, pin, spike

**COLOR:** Off-white

**ODOR:** Not established

**MOLECULAR WEIGHT:** 255.7 (for imidacloprid)

**pH:** 6-7 (10% solution)

**BOILING POINT:** Not applicable

**MELTING/FREEZING POINT:** Not applicable

**SOLUBILITY IN WATER:** 0.51 g/L @ 20 °C (for imidacloprid)

**SPECIFIC GRAVITY:** 1.61

**BULK DENSITY:** Not applicable

**% VOLATILE BY VOLUME:** Not established

**VAPOR PRESSURE:** 1.5 x 10<sup>-9</sup> mm @ 20 °C (for imidacloprid)

**VAPOR DENSITY:** Not established (Air = 1)

**10. STABILITY AND REACTIVITY:**

**STABILITY:** This is a stable material.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**INCOMPATIBILITIES:** For fertilizer: strong mineral acids and strong alkalies.

**INSTABILITY CONDITIONS:** None known

**DECOMPOSITION PRODUCTS:** None known

**11. TOXICOLOGICAL INFORMATION:**

Acute toxicology studies have not been performed on this product as formulated. The acute toxicology information provided are from a granular formulation containing a similar amount of imidacloprid. The non-acute information pertains to imidacloprid technical.

**ACUTE TOXICITY:**

**ORAL LD50:** Male and Female Rat: >4820 mg/kg

**DERMAL LD50:** Male and Female Rabbit: >2000 mg/kg

**INHALATION LC50:** 4 Hr Exposure to Dust: Male and Female Rat: >5.09 mg/L (analytical); 1 Hr Exposure to Dust (extrapolated from 4 Hr LC50): Male and Female Rat: >20 mg/L (analytical)

**EYE EFFECTS:** Rabbit: Mild irritation to the conjunctiva was observed with all remarkable irritation resolving within 48 hours.

**SKIN EFFECTS:** Rabbit: Not a dermal irritant.

**TOXICOLOGICAL INFORMATION continued:**

**SENSITIZATION:** Guinea Pig: Not a dermal sensitizer.

**SUBCHRONIC TOXICITY:**

In a 3 week dermal toxicity study, rabbits were treated with the active ingredient, imidacloprid, at the limit dose level of 1000 mg/kg for 6 hours/day, 5 days/week. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg/kg. In a 4 week inhalation study, rats were exposed to dust concentrations of imidacloprid at 5.5, 30.5 and 191.2 mg/cubic meter for 6 hours/day, 5 days/week. Effects observed at the high concentration included decreased body weight gains, decreased heart and thymus weights, increased liver weights, and induction of the hepatic mixed-function oxidases. Histopathological examinations did not reveal any organ damage or local injury to the respiratory tract. The NOEL was 5.5 mg/cubic meter based on induction of the hepatic mixed-function oxidases.

**CHRONIC TOXICITY:**

Dogs were administered imidacloprid for 1 year at dietary concentrations of 200, 500 or 1250 ppm. Due to the lack of significant effects, the high dose was increased to 2500 ppm at 17 weeks for the remainder of the study. Effects observed at the high dose included decreased food consumption, increased liver weights and elevated serum chemistries. The NOEL was 500 ppm. In chronic studies using rats, imidacloprid was administered for 2 years to rats at dietary concentrations of 100, 300, 900 or 1800 ppm. Histopathology examinations revealed an increased incidence of mineralization in the colloid of the thyroid follicles at concentrations of 300 ppm and greater. At 1800 ppm, there were changes in the serum chemistries and a slight increase in the incidence of parafollicular hyperplasia seen in the thyroids. Body weight gains were reduced at 900 and 1800 ppm. The overall NOEL was 100 ppm.

**CARCINOGENICITY:**

Imidacloprid was investigated for carcinogenicity in chronic feeding studies using mice and rats at maximum levels of 2000 and 1800 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

**MUTAGENICITY:**

The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

**DEVELOPMENTAL TOXICITY:**

In a developmental toxicity study using rats, imidacloprid was administered by oral gavage during gestation at doses of 10, 30 or 100 mg/kg. At the maternally toxic dose of 100 mg/kg, skeletal examinations of the fetuses revealed a slight increase in the incidence of wavy ribs. The NOELs for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested. Rabbits were administered imidacloprid during gestation at oral doses of 8, 24 or 72 mg/kg. At the maternally toxic dose of 72 mg/kg, reduced body weights and delayed skeletal ossification were observed in the fetuses. The NOELs for maternal and developmental toxicity were 8 and 24 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested.

**REPRODUCTION:**

In a reproduction study, imidacloprid was administered to rats for 2 generations at dietary concentrations of 100, 250 or 700 ppm. Offspring at 700 ppm, exhibited reduced mean body weights and body weight gains. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

**NEUROTOXICITY:**

In an acute neurotoxicity screening study using rats, imidacloprid was administered as a single oral dose at levels of 42, 151 or 307 mg/kg. Clinical observations and neurotoxicity evaluations were performed over a period of 15 days followed by a neurohistopathological examination. Deaths attributed to imidacloprid were observed at the high dose within a day of treatment. The

**TOXICOLOGICAL INFORMATION continued:**

**NEUROTOXICITY continued:**

NOEL for motor and locomotor activity was 42 mg/kg for males. Females at the low dose exhibited minimal decrease in activity in the figure-eight maze. In a subsequent study, the NOEL for motor and locomotor activity in females was 20 mg/kg. All clinical signs and neurobehavioral effects were ascribed to acute cholinergic toxicity, with complete recovery at sub-lethal doses within 7 days following treatment. The NOEL for neurotoxicity was 307 mg/kg based on the absence of treatment-related microscopic lesions in skeletal muscle or neural tissue. In a 13 week neurotoxicity screening study, imidacloprid was administered to rats at dietary concentrations of 140, 963 or 3027 ppm. At the mid- and high-dose, effects observed included reductions in body weight and feed consumption, and clinical chemistry findings. Neurobehavioral changes were observed only in males at the high dose. There were no correlative micropathologic findings in muscle or neural tissues in any animals at any treatment level. The NOEL for neurotoxicity was 3027 ppm. The overall NOEL was 140 ppm.

**12. ECOLOGICAL INFORMATION:**

This product is highly toxic to aquatic invertebrates. The active ingredient in this product has been thoroughly evaluated for ecological effects. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions.

**13. DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL METHOD:** Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

**14. TRANSPORTATION INFORMATION:**

**TECHNICAL SHIPPING NAME:** Imidacloprid  
**FREIGHT CLASS PACKAGE:** Insecticides, NOI-NMFC 102120  
**PRODUCT LABEL:** Not Noted  
**DOT (DOMESTIC SURFACE):**  
**HAZARD CLASS OR DIVISION:** Non-Regulated  
**IMO / IMDG CODE (OCEAN):**  
**HAZARD CLASS DIVISION NUMBER:** Non-Regulated  
**ICAO / IATA (AIR):**  
**HAZARD CLASS DIVISION NUMBER:** Non-Regulated

**15. REGULATORY INFORMATION:**

**OSHA STATUS:** This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.  
**TSCA STATUS:** This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.  
**CERCLA REPORTABLE QUANTITY:** No components listed  
**SARA TITLE III:**  
**SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES:** None  
**SECTION 311/312 HAZARD CATEGORIES:** Immediate Health Hazard

**REGULATORY INFORMATION (Continued):**

**SECTION 313 TOXIC CHEMICALS:** None

**RCRA STATUS:** If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

**16. OTHER INFORMATION:**

**NFPA 704M RATINGS:**

Health: 1      Flammability: 1      Reactivity: 1      Other:  
 0=Insignificant   1=Slight      2=Moderate      3=High      4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer as a customer service.

**REASON FOR ISSUE:** Delete emergency telephone number (Sections 8 & 12)

**PREPARED BY:** V. C. Standart

**APPROVED BY:** D. C. Eberhart

**TITLE:** Product Safety Manager

**APPROVAL DATE:** 11/07/2001

**SUPERSEDES DATE:** 10/11/1999

**MSDS NUMBER:** 36838

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